

Appl. No. 10/769,344
Atty. Docket No. 9005MR
Amdt. dated July 3, 2006
Reply to Office Action of May 3, 2006
Customer No. 27752

REMARKS

Applicants note that the merits of this case as well as those of the following co-pending cases were discussed in a personal interview with the Examiner on February 2, 2006: 10/429,531 (Docket No. 9005M); 10/769,344 (Docket No. 9005MR); 10/935,268 (Docket No. 9005MRC); 10/429,633 (Docket No. 9006M); 10/936,938 (Docket No. 9006MR). Applicants further note that for the convenience of the Examiner, the attached Appendix contains a copy of the Interview Summary for case 10/429,531 (Docket No. 9005M), in which the compounds of U.S. Patent No. 2,075,107 issued to Frazier, are characterized.

Claim Status

Contrary to the current Office Action, claims 1-20, rather claims 1-17, are pending in the present application. Claims 1-17 are currently rejected and are presented for the Examiner's reconsideration in light of the following comments.

Rejection Under 35 USC §103(a) Over Frazier in View of Westbrook

Claims 1-17 have been rejected under 35 USC § 103(a) as being unpatentable over US Patent No. 2,075,107, issued to Frazier (hereinafter referred to as "Frazier") in view of US Patent No. 5,389,711, issued to Westbrook et al. (hereinafter referred to as "Westbrook"). The Office indicates that "[t]he Frazier patent shows "artificial resins" that can be combined with ester compounds shown at column 1 lines 30+." The Office further indicates that "these [Frazier] compounds are seen to have structures and substituents which can be selected so as to overlap in scope with those claimed...[although] the specifically claimed polymers are not identified in this patent...it is generic to the claimed polymers." Yet the Office provides no indication as to how the Frazier compounds overlap in scope with those claimed. Applicants respectfully request clarification particularly in light of the following differences between the resins of Frazier and the disclosed phase change solvents.

According to the previously presented claims, the phase change solvents with the general formulas described therein, *must* be characterized by a phase change in the temperature range from 40°C to 250°C. "Below the phase change temperature of the solvent, the phase change solvents solidify or crystallize within the thermoplastic polymer matrix." *See for example, p. 1, lines 17-18 of the Specification.* Applicants assert that one of skill in the art would recognize that the ester compounds disclosed by Frazier as

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plasticizers would not be characterized by a phase change in the temperature range from 40°C to 250°C that is required in present claim 1. Indeed, beyond repeated statements in Frazier that its disclosed esters are liquid (see: page 1, col. 1, lines 22-26; page 2, col. 1, lines 14-17 and lines 67-73; and page 2, col. 2, lines 37-44), one of skill in the art would recognize that the Frazier plasticizers are liquids in the temperature range from 40°C to 250°C for the following reasons.

As noted in the Office Action of November 18, 2005 for co-pending case 10/429,531 (Docket No. 9005M), "[t]he Frazier patent teaches ester compounds which...conform to the general formula at page 1, lines 28-33" in which it is taught that R and R¹ may be alkyl or aryl groups having at least two carboxyl groups attached thereto. See page 1, lines 33-35. One of skill in art would recognize that the substitution of an aryl group at the R and/or R¹ position(s) of Frazier provides for phthalate groups that are *ortho*-ring substituted, i.e., substituted in the 1,2 position. For instance, by substituting aryl groups into R and R¹ positions, the compounds comprising Frazier's examples are derived, including: ethylene glycol dihydrogen diphthalate on page 1, line 45; di-beta-butoxy ethyl ethylene glycol diphthalate on page 2, line 20; di-beta-ethoxyethyl dethylene glycol diphthalate on page 2, line 35; dibutyl ethylene glycol diphthalate on page 2, line 45; and the mixed ester on page 2, line 55, all of which comprise diphthalates which are *ortho*-ring substituted.

It is well recognized in the art that the phase change behavior of a phthalate is dependent upon where the ring is substituted as well as the size of the substituting group. This assertion is supported by the following table and Supplemental IDS, which were both previously submitted to the Office on February 23, 2006 for co-pending Application No. 10/429,531 (Docket No. 9005M).

The table summarizes the melting points of phthalates disclosed in the art (submitted in the Supplemental IDS). It is readily apparent that phthalates like those taught by Frazier that are *ortho*-ring substituted are liquids and will not undergo a phase change in the temperature range from about 40°C to about 250°C. In contrast, it is also readily apparent that phthalates that are *para*-ring substituted, such as those disclosed in the present application, will undergo a phase change in the temperature range from about 40°C to about 250°C as is required in the pending claims.

R group	phthalate melting point Ortho ring subst. 1,2-	terephthalate melting point Para ring subst. 1,4-	trisubstituted ring melting point
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Methyl	2°C (Ref. 1 Reg. 131-11-3)		
Ethyl	-3°C (Ref. 1 Reg. 84-66-2)	44°C (Ref. 2 Reg. 636-09-9)	
Butyl	-35°C (Ref. 1 Reg. 84-74-2)		liquid (Ref. 2 Reg. 104564-69-4)
Hexyl	-58°C (Ref. 2 Reg. 84-75-3)	37°C (Ref. 2 Reg. 1818-96-8)	liquid (Ref. 2 Reg. 79307-88-3)
Octyl	-50°C (Ref. 1 Reg. 117-84-0)	48°C (Ref. 2 Reg. 4654-26-6)	liquid (Ref. 2 Reg. 123905-83-9)
Decyl	Liquid (Ref. 2 Reg. 84-77-5)	57°C (Ref. 2 Reg. 1818-97-9)	liquid (Ref. 2 Reg. 122240-20-4)

Ref. 1- Aldrich Chemical Company Catalog (2005-6)

Ref. 2- SciFinder search of CAPLUS, MEDLINE, CASREACT and CHEMLIST, CHEMCATS databases.

Applicants therefore assert that Frazier does not teach or suggest ester compounds that undergo the phase change in the temperature range specified in claim 1, and as such fails to meet the requirements for *prima facie* obviousness. This assertion is supported by the Office's characterization of the Frazier compounds in co-pending case 10/429,531 (Docket No. 9005M), as having 1, 2 attachments of its pendant groups, which renders liquid compounds. *See Appendix*. Applicants therefore respectfully request withdrawal of the § 103(a) rejections of claims 1 and 2-17.

Since Applicants have established that the primary reference of Frazier is not properly applied in the suggested context, the Applicants believe there is no need to address the propriety of the application of Westbrook as a secondary reference. Nevertheless, the Applicants note that Westbrook fails to resolve any of the shortcomings of Frazier on the following bases.

The Office cites Westbrook as showing "...similar ester compounds mixed with the claimed polymers..." and that "[i]t would be obvious to use the ester compounds of Frazier with the polymers of Westbrook given the overlap in suitable materials to be used in each of the compositions." Applicants respectfully disagree with the characterization of what is shown by Westbrook and assert that Westbrook does not indeed teach or suggest the claimed polymers and actually teaches away from using the presently claimed "non-functionalized" polymers.

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Applicants assert that the presently claimed co-polymers do not overlap in scope with those of Westbrook. Westbrook teaches the use of "ionomers" or functionalized monovinyl aromatic polymers in which salt functional groups are incorporated "...into the polystyrene blocks to increase the polymer's solvent resistance, high temperature properties and tensile strength." *See col. 1, lines 50-64.* Westbrook then indicates that "[t]he same polymer without functionality is limited to service temperatures of about 100 °C." *See id, lines 62-64.* Yet, the presently claimed copolymers are not "functionalized", i.e., they do not comprise salt functional groups, and contrary to Westbrook's teaching, they do not have the identified temperature limitations as is evidenced by the claimed phase change temperature range of from about 40°C to about 250°C. Moreover, ionomers as a class require an extremely polar additive such as water to dissociate the ionic groups and lower viscosity. *See col. 1, through col. 2.* Conversely, non-functionalized block copolymers such as those currently claimed are not plasticized by extremely polar compounds such as water and water may actually act as a non-solvent.

Based upon the foregoing, Applicants submit that Frazier in view of Westbrook does not render the pending claims obvious. As such, withdrawal of the § 103(a) rejections of claims 1-17 is respectfully requested.

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Conclusion

In light of the above remarks, it is requested that the Examiner reconsider and withdraw the Double Patenting rejections as well as the rejections under 35 USC § 103(a). Early and favorable action in the case is respectfully requested.

This response represents an earnest effort to place the application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, reconsideration of this application, entry of the amendments presented herein, and allowance of Claims 1-20 is respectfully requested.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY

By 

Signature

Julie A. McConihay

Typed or Printed Name

Registration No. 55,439

(513) 634-9076

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Appendix

Interview Summary	Application No.	Applicant(s)	
	10/429,531	SMITH ET AL.	
	Examiner	Art Unit	
	Peter D. Mulcahy	1713	

All participants (applicant, applicant's representative, PTO personnel):

(1) Peter D. Mulcahy. (3) Mr. Krebs.

(2) Ms. McConihay. (4) Dr. Hamersky and Dr. Smith.

Date of Interview: 02 February 2006.

Type: a) ☐ Telephonic b) ☐ Video Conference
 c) ☒ Personal [copy given to: 1) ☒ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
 If Yes, brief description: _____

Claim(s) discussed: All rejected.

Identification of prior art discussed: Fraizer and Knobel et al.

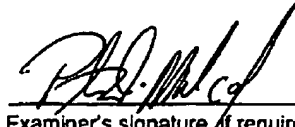
Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicants amendments to the n number and phase change temperature would appear to obviate the art rejection over Knobel. The compounds of Fraizer are different from those claimed in the 1,2 attachment of the pendant groups. This attachment renders liquid compounds. The claims are limited to solid compounds.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.


 Examiner's signature, if required